



FET – The Future and Emerging Technologies programme in H2020

European Commission
DG CONNECT
Dir C Excellence in Science



Overview

- FET in Horizon 2020
- FET action lines and cross-cutting issues
- FET-Open – *fostering novel ideas*
- FET-Proactive - *nurturing emerging themes and communities*
- FET-Proactive - *High-Performance Computing*
- FET Flagships - *tackling grand interdisciplinary science and technology challenges*
- Digital Science and Open Access
- FET Advisory Group
- FET WP structure & timeline

FET in Horizon 2020

Excellent Science pillar in H2020

- European Research Council
- Marie Skłodowska-Curie actions
- **Future and Emerging Technologies**
- Research infrastructures programme



*"**Future and emerging technologies** shall support collaborative research in order to extend Europe's capacity for advanced and paradigm-changing innovation. It shall foster scientific collaboration across disciplines on radically new, high-risk ideas and accelerate development of the most promising emerging areas of science and technology as well as the Union wide structuring of the corresponding scientific communities."*

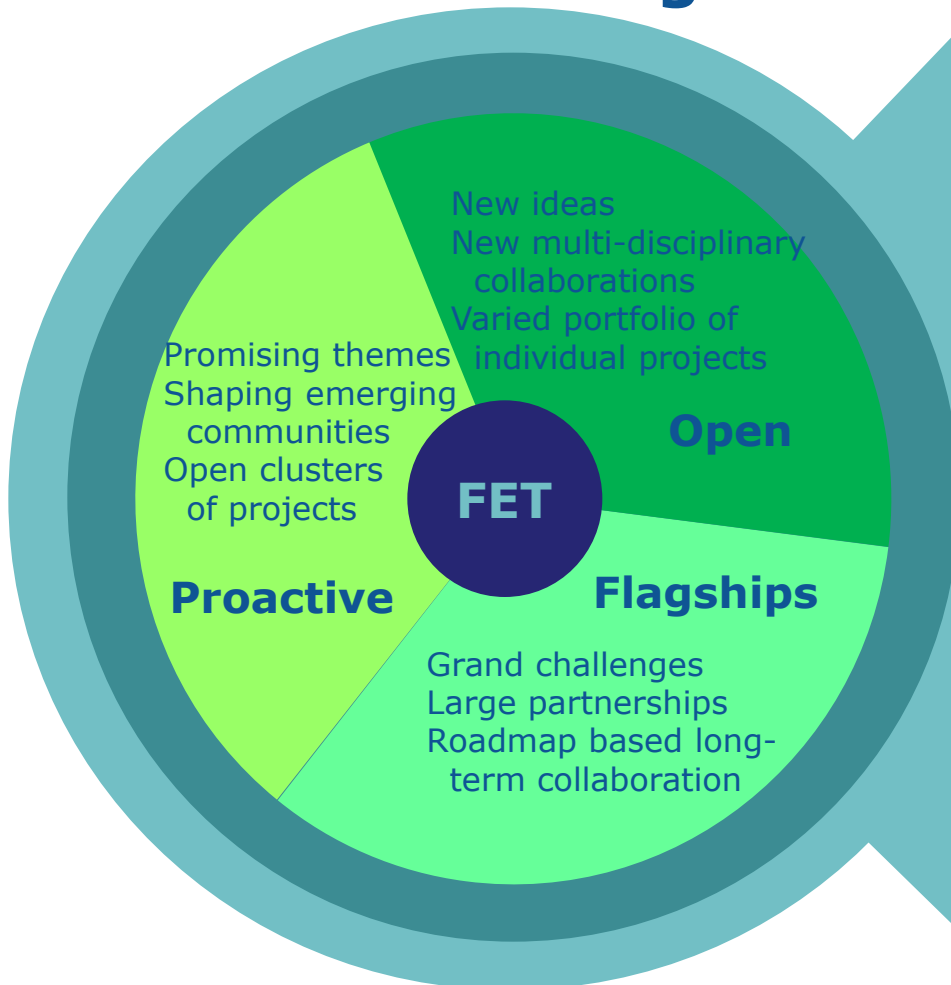
COMMISSION PROPOSAL ON ESTABLISHING HORIZON 2020 - THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION (2014-2020)

Pathfinding Europe's technological future

FET's missions

- *To promote and support the emergence of radically new technology areas that will renew the basis for future European competitiveness and growth and will make a difference for society in the decades to come.*
- *To initiate and shape the development of European research and innovation eco-systems around such future and emerging technologies, as seeds of future industrial leadership and potential solutions for societal challenges.*
- *To turn Europe into the best environment for responsible and dynamic multi-disciplinary collaborations on such future and emerging technologies, including facilitating the wider training of researchers in new areas.*

FET action lines and cross-cutting issues



New synergies and collaborations

- New interdisciplinary synergies linking sciences, technologies and the humanities
- Attracting new high-potential actors, e.g., high-tech SMEs and young researchers
- Programme synergies at European level
- International (global) cooperation

Promoting new approaches and tools for doing science

- Exploring creative R&I methodologies
- Future generation computing to enable advanced simulation, data capture,...
- Digital Science and e-infrastructures

Innovation

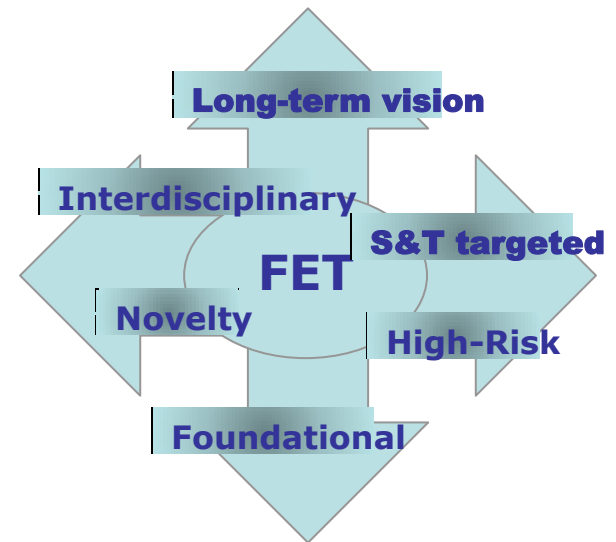
- European leadership for FETs
- Encouraging new ideas and actors
- Kick-starting new innovation eco-systems (small and large) around new technologies
- Delivery of new technology options and baselines to industry and spin-offs
- Digital science, open data for wider and faster transfer, spin-off and education

Responsible research and innovation

- Social Sciences and Humanities are relevant
- Promoting societal debate and exchange
- FET Advisory Board and FET Observatory to capture views and needs widely
- Open access, open data policies
- Ethics of methods as well as of results

FET Open: fostering novel ideas

- 'Open is open': all technologies, no other topical scope limitation.
- 40% of the FET budget in H2020 (>1B€ as of September 2013).
- FET gatekeepers define the kind of research that FET is looking for.
- Overall goal – contribute to innovation by:
 - Encouraging the application of existing scientific knowledge to solve technological problems
 - Facilitating new scientific research to fill today's gaps in technology
 - Supporting the development of expertise in new technological areas within the EU



FET Gatekeepers

FET Open: fostering novel ideas

- Two types of projects envisaged (difference in impact expected)
 - **Exploiting science to pioneer** a radically new future technology line
 - **Kick-starting** an emerging innovation ecosystem around a new technological possibility

Further impacts expected in terms of the evolution of communities, of R&I practices (including 'digital science') and enabling leading-edge science and technology research to be more flexible to meet exploitation needs, more collaborative, and closer to society.

FET Open: fostering novel ideas

- *An end-to-end light and fast scheme:*
 - **1 step submission**, ~15 page
 - **1-stage evaluation** (FET specific evaluation criteria)

FET-Open: Coordination and Support Actions

A range of actions geared towards some of the following impacts:

- **European leadership** in new and emerging technologies with a strong engagement of scientists, citizens, innovators and policy makers.
- **Improved long-term innovation potential** in Europe from supporting novel ideas and attracting novel actors ready to take them forward.
- **More silo-breaking research collaboration** and take up of new research and innovation practices.
- **Improved understanding of impact mechanisms** in long-term science and technology research.



Publication date: 11/12/2013

Deadline(s):^{3 4.}

FET-Open

FETOPEN 1	30/09/2014 at 17.00.00 Brussels time	[31/03/2015] at 17.00.00 Brussels time	[29/09/2015] at 17.00.00 Brussels time
FETOPEN 2	30/09/2014 at 17.00.00 Brussels time		
FETOPEN 3		[31/03/2015] at 17.00.00 Brussels time	[29/09/2015] at 17.00.00 Brussels time

Overall indicative budget: EUR 80 million from the 2014 budget⁵, EUR 53.7 million from the 2015 budget⁶ and EUR 26.3 million from the 2016 budget⁷.

	2014 EUR million	2015 [1] EUR million	2015 [2] EUR million
FETOPEN 1	77	38.5	38.5 ⁸
FETOPEN 2	3		
FETOPEN 3		1.5	1.5

FET Proactive - nurturing emerging themes and communities

- A set of thematic initiatives on promising emerging research themes.
- Building up a European pool of knowledge and new interdisciplinary communities.
- Joint exploration or consolidation of promising future technologies.
- Topics defined bottom-up (FET Observatory):
 - **FET-Open portfolio analysis**
 - **Consultations**
 - **Participatory engagement with industry and society**
 - **Coordination and support actions**

FET Proactives in WP2014-15

Three topics are selected for funding in WP2014-15:

- **Global Systems Science (GSS)**
- **Knowing, doing and being: cognition beyond problem solving**
- **Quantum simulation**
- **Towards exascale high-performance computing**

FET Proactive in WP2014-15

Global Systems Science (GSS)

- The challenge is to improve the way scientific knowledge can stimulate, guide, and help evaluate policy and societal responses to global challenges eg
 - climate change
 - financial crisis
 - Pandemics
 - global growth of cities.
- Policy challenges shall be addressed by radically novel tools for producing and delivering scientific knowledge to the policy processes.

Evidence for researcher interest:

- Consultation (ca. 180 comments)
- Previous FP7 projects and proposals (eg FuturICT FET flagship pilot)

FET Proactive in WP2014-15

Knowing, doing and being: cognition beyond problem solving

- New foundations for future robotics and other artificial cognitive systems
- Deeper understanding of non-performing aspects of social robotics
- Development and interaction in mixed human/technological settings
- Improved understanding of the impacts of the technologically enhanced environments on the human behaviour, at the individual and collective levels
- Understanding the origins and development of synergies and divides in socio/technical contexts and ways to influence them

Evidence for researcher interest:

- Consultation (ca. 180 comments)
- Previous FP7 projects and proposals (eg Robocom FET flagship pilot)



Publication date: 11/12/2013
Deadline(s)¹²:

FET-Proactive

FETPROACT 1 FETPROACT 2 FETPROACT 3	01/04/2014 at 17.00.00 Brussels time
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Overall indicative budget: EUR 33 million from the 2014 budget¹³ and EUR 2 million from the 2015 budget¹⁴.

	2014 EUR million	2015 <i>EUR million</i>
FETPROACT 1	10	
FETPROACT 2	15	
FETPROACT 3	8	2



FET Proactive in WP2014-15

Towards exascale high-performance computing



COM "High-Performance Computing: Europe's place in a global race" (*adopted 15 Feb 2012*)

- HPC has a fundamental role in driving innovation leading to societal impact through **better solutions for societal challenges** and **increased industrial competitiveness**.

HPC drivers :

- Addressing effectively **Societal and Scientific challenges**
- Industry is increasingly depending on HPC to fulfil the need to **innovate in products and services** (better jobs)
- Gaining independent access to HPC systems and services for Europe **supports growth and competitiveness** in industry and the economy
- **Transition from petascale to exascale computing requires disruptive approaches in key technologies.** This creates new opportunities for both science applications and computing technologies

Vision: *Ensure European leadership in the supply and use of HPC systems and services by 2020*

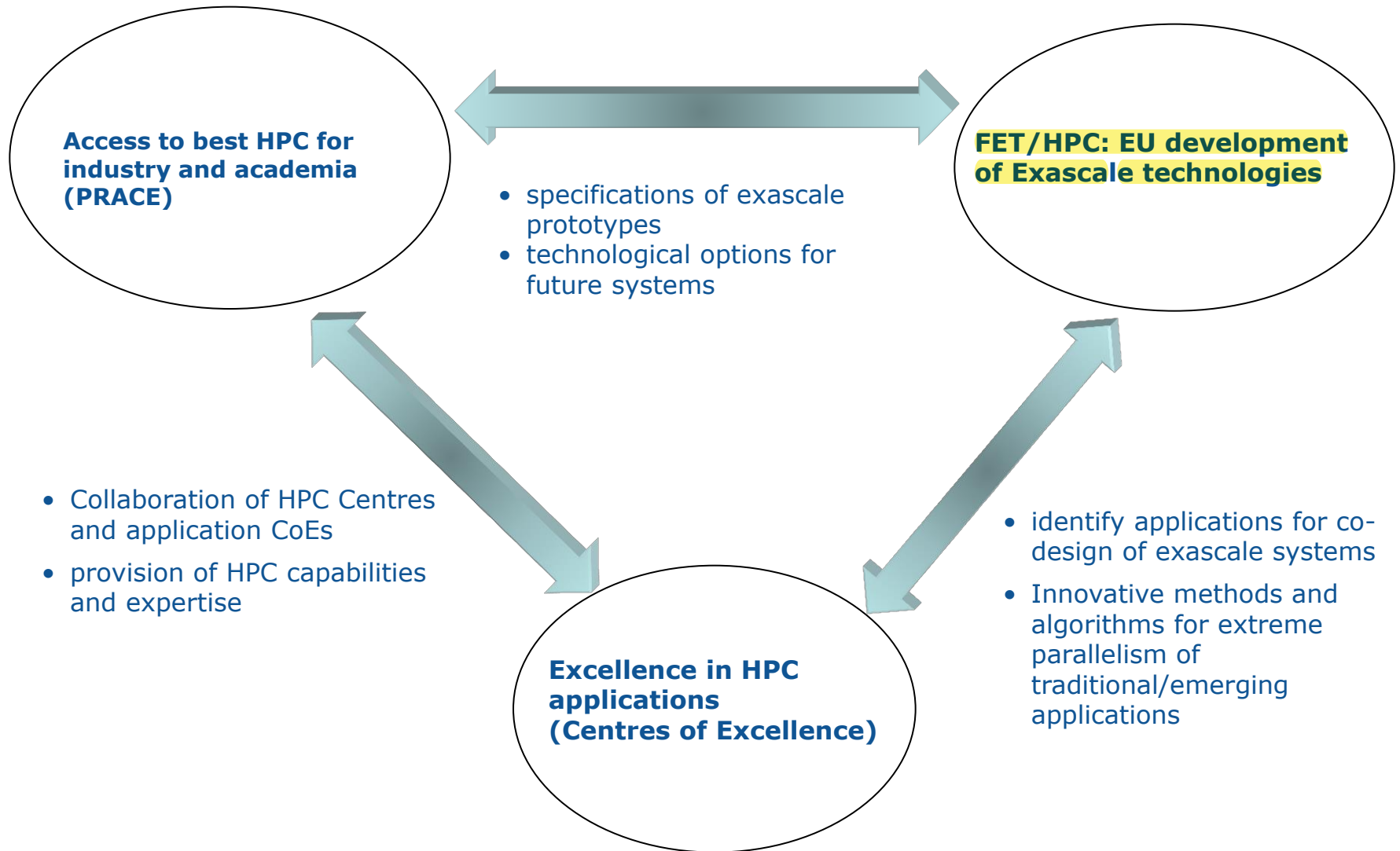


- HPC is an important asset for the EU's innovation capacity of strategic importance to the EU's industrial and scientific capabilities as well as its citizens:
 - developing innovative industrial products and services,
 - increasing competitiveness,
 - addressing societal and scientific grand challenges more effectively.
- Europe has the technology, knowledge and human skills to develop capabilities covering the whole technological spectrum of the next HPC generation (exascale computing)
- Importance of developing state-of-the-art HPC technologies, systems, software, applications and services in Europe
- All relevant actors, public and private, need to work in partnership
- Invites the EC to elaborate its plans for HPC to support academic and industrial research and innovation under H2020

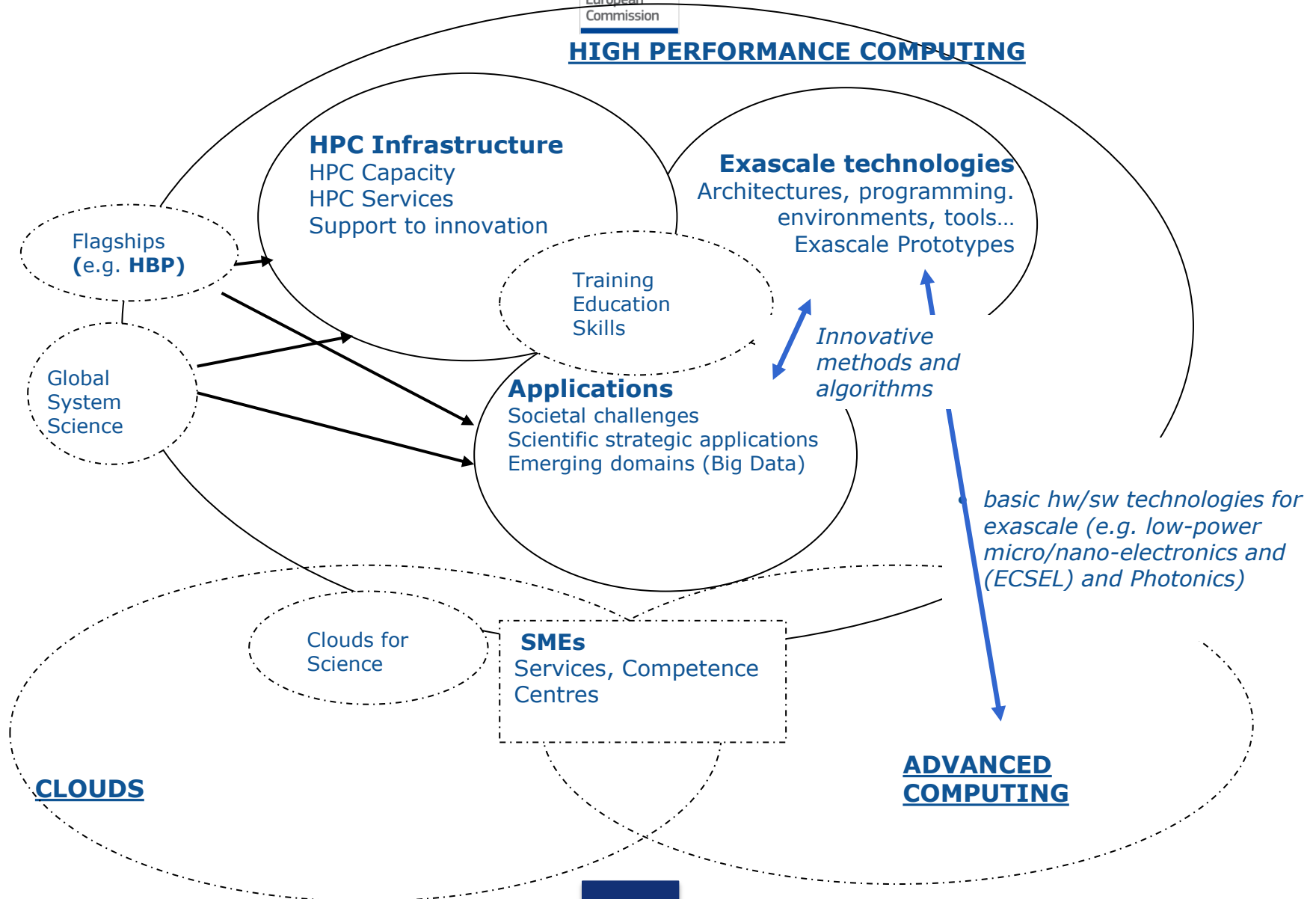


- HPC strategy combining three elements:
 - (a) **Computer Science: towards exascale HPC**; *A special FET initiative focussing on the next generations of exascale computing as a key horizontal enabler for advanced modelling, simulation and big-data applications [HPC in FET]*
 - (b) **achieving excellence in HPC applications**; *Centres of Excellence for scientific/industrial HPC applications in (new) domains that are most important for Europe [e-infrastructures]*
 - (c) **providing access** to the best supercomputing facilities and services for both industry and academia; *PRACE - world-class HPC infrastructure for the best research [e-infrastructures]*
- complemented with training, education and skills development in HPC

Interrelation between the three elements



Links with LEIT



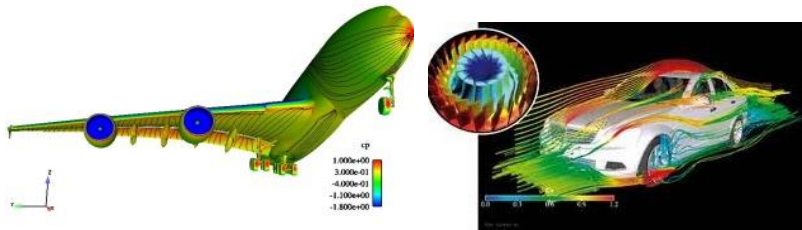
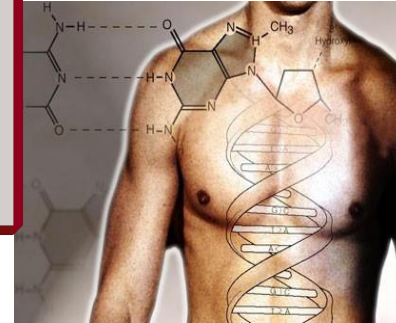
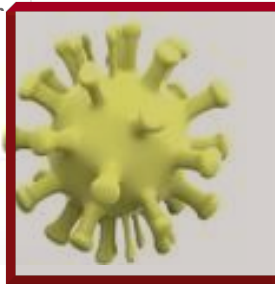
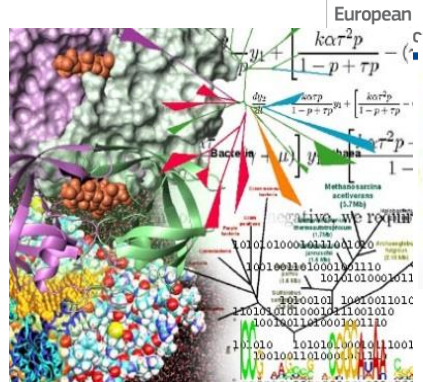
HPC in FET: Critical technologies



Addressing Societal Challenges 1/2



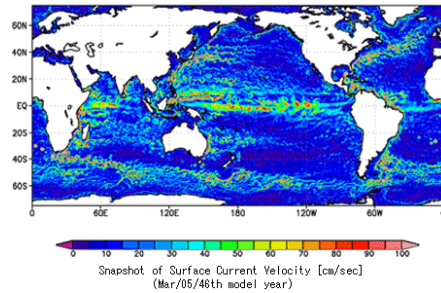
Health, demographic change and well-being
(Personalised medicine, pharma/bio-medical simulations, Virtual Physiological Human, Human Brain Project)



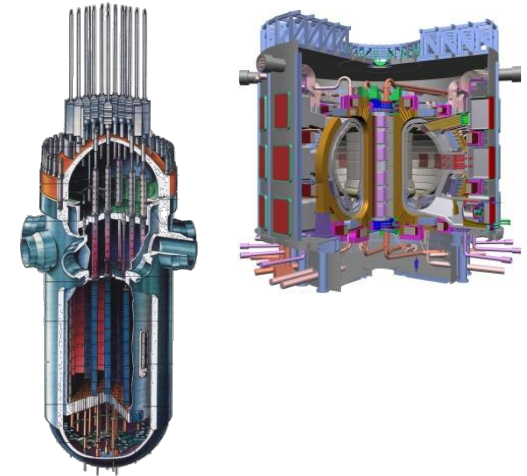
Smart, green and integrated transport Engineering
(performance, sustainability, energy efficiency)



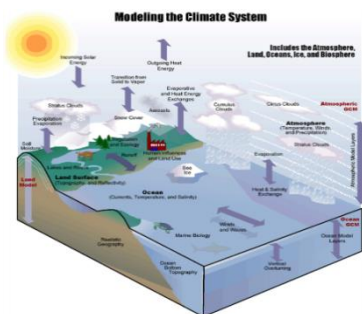
Inclusive, innovative and secure societies
(Smart Cities, multivariable decision/analytics support)



Climate action, resource efficiency and raw materials
(Simulators for Climate & Earth Sciences, Gas&Oil)



Secure, clean and efficient energy
(Fusion, nuclear plant simulations)



Food security, sustainable agriculture, marine research and the bio-economy
(simulation of sustainability factors (e.g. weather forecast, stock plagues and diseases control, etc))



- The HPC strategy fulfils the expectations of H2020 actions, i.e.
 - linking supply of state-of-the art HPC technologies with applications & users of technology
 - strong linkages of FET/HPC activities with both LEIT and Societal Challenges
 - complementarities with other initiatives (e.g. chip/processor technologies in ECSEL JTI, photonics interconnects in Photonics21 PPP)
- Engaging all actors: users and application developers; PRACE and supercomputing centres; the **European Technology Platform in HPC (ETP4HPC)**; industry, SMEs and academia.
- Public-Private Partnership (PPP) with **ETP4HPC** to maximise synergies
 - PPP covering HPC/exascale technology developments and excellence in applications
 - strong collaboration with PRACE



- The exascale computing frontier requires **fundamental science and technology developments** to ensure the transition to extreme parallelism and extreme data
 - evolution of most of the key technological solutions that are satisfactory today will be **insufficient** to meet the exascale challenge
- R&D covering the whole spectrum from processors and system architectures to high-level software and tools and novel applications (e.g. encompassing system software, file systems, compilers, programming environments and tools, algorithms etc.)
 - engaging a European-wide effort to develop technology to build exascale systems within ~10 years



- **Energy:** Extrapolation of current power consumption (e.g. Top system Tianhe-2) would need ~ 1 GW for sustained exaflops: breakthroughs and advances in circuits, architecture and software are needed to achieve the ~ 20 MW exaflop computing
 - Low power consumption processor and memory, associated cooling technologies, communications and switching off techniques, intelligent algorithms to distribute processing and memory storage efficiently..
- **Memory and I/O:** Handling of memory, latency and locality at all levels, from processor, to network and storage.
 - I/O performance is well below the computational one but more and more bandwidth and efficient storage mechanisms are needed to handle petabytes of data (e.g. the Square Kilometer Array (SKA) will process over 1 exabyte of data per day!!)
 - Big data and High Performance Analytics: Besides the Big Data challenge in Science, HPC will increasingly be used for the high-end commercial analytics
 - Predictions for a 4,300% increase in annual data generation by 2020 –the global data volume would reach 35 zettabytes (or 35 billion terabytes)



- **Programmability and algorithms:** Programmers face the challenge of handling billions of computing threads. Only very few applications using HPC really take advantage of current petaflop system.
 - new computational methods and algorithms must be developed, and (new) applications must be (re-)programmed in radically new ways, requiring highly innovative high-level programming models, environments and tools to efficiently tune and map the algorithms into massive parallel architectures
- **Resilience:** Innovative ideas are needed to cope with a very unstable and complex environment of millions of cores with frequent fault rates
 - Particularly relevant for future applications where HPC is in the real time control/critical loop, e.g. in the control of smart cities
- **Co-design:** Technology development must be associated to users requirements to get the right systems to satisfy the needs of applications.
 - e.g. in the Human Brain Project exascale capabilities will be required for cellular-level models of the human brain, brain-inspired communications protocols and strategies for information storage and retrieval; massively parallel very low-power computing cores, etc.



➤ FETHPC 1: **HPC core Technologies, Programming Environments and Algorithms for Extreme Parallelism and Extreme Data Applications**

➤ Addressing the exascale challenges to achieve, by 2020, the full range of technological capabilities for exascale-class HPC systems which are balanced at all levels and validated with significant application drivers

➤ topics:

- core technologies and architectures (e.g. *processors, memory, interconnect and storage*) and their optimal integration into HPC systems, platforms and prototypes
- Programming methodologies, environments and tools: new programming models for extreme parallelism and extreme data applications
- APIs for Future Extreme Scale Systems and exascale stack,
- New mathematical and algorithmic approaches (e.g. *ultra-scalable algorithms for extreme scale systems with quantifiable performance for existing or visionary applications*)



➤ FETHPC 2: HPC Ecosystem Development

➤ To develop a sustainable European HPC Ecosystem

➤ topics:

- Coordination of the HPC strategy: coordination of the activities of stakeholders such as ETP4HPC, PRACE, application owners and users (including emerging HPC applications), the European exascale computing research community, the open source HPC community, etc.
- Excellence in High Performance Computer Architecture: preparing a virtual distributed European Research Centre in High Performance Computer Architecture

FETHPC

Publication date: 11/12/2013

Deadline(s)¹⁷:

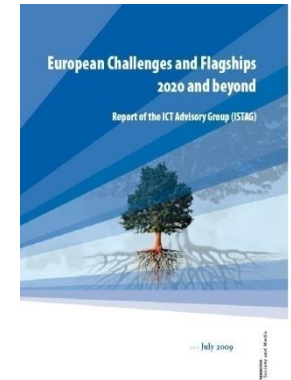
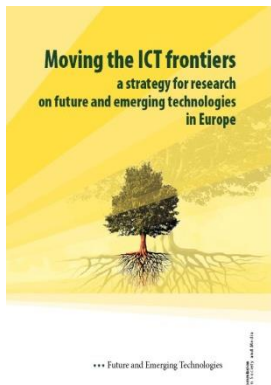
FETHPC 1 FETHPC 2	25/11/2014 at 17.00.00 Brussels time
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Overall indicative budget: EUR 97.4 million from the 2014 budget¹⁸.

	2014 EUR million
FETHPC 1	93.4 - with a minimum of 60% of the available budget to be allocated to research under part a) of the scope.
FETHPC 2	4

FET Flagships - Policy Context

Apr. 2009 COM (2009)184 'Moving the ICT frontiers'
 "Launch at least two FET flagship initiatives by 2013"



July 2009 ISTAG report
 "European Challenges and Flagships - 2020 and beyond"



Dec. 2009 The COMP Council

"invites the Commission to propose Europe-wide flagship initiatives in FET to tackle specific science and technology challenges at the crossover between ICT and other scientific disciplines"

FET Flagships – salient features

FET Flagships are highly ambitious, large-scale, long-term, science-driven, goal-oriented, roadmap-based research initiatives, which will:

- provide strong scientific, technological and IPR basis for establishing areas of European leadership and bringing substantial benefits for society
- help overcome fragmentation and increase the impact of European research and innovation efforts

and which will require:

- cooperation among a range of scientific communities/disciplines, with industries and with the involvement of representatives from the civil society
- a long-term commitment of all key stakeholders sharing a common scientific vision and under a strong leadership
- a joint effort of EU and national programmes to provide a large financial support (~ 100 M€/year) over a long period (~ 10 years)

Graphene & Human Brain Project selected



Stimulating ideas & structuring the scientific community
2009 - 2010

Call for Preparatory Actions
21 → 6
July 2010

Preparatory Phase Pilots
05/2011 - 04/2012

Flagship selection
6 → 2
end 2012

FP7 ramp-up phase
10/2013- 03/2016

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Brain Simulation and Graphene Research Receive Billion Euro Each

0 Comments  7  3  Share  E-mail  Print

Mark Hoffman

First Posted: Jan 28, 2013 09:57 AM EST

The result of the highly anticipated decision of which two research projects will receive a one billion Euro research grant, the largest single research award ever, from the European Commission were announced by the European Commission's Vice-President Neelie Kroes today.



The first project is the [Human Brain Project](#), led by neuroscientist Henry Markram at the Swiss Federal Institute of Technology (EPFL) in Lausanne, which aims to simulate the human brain in a supercomputer, in order to aid medical advancement in brain disorders.

Like Us on [Facebook](#) 

The second, called [Graphene Project](#), is led by theoretical physicist Jari Kinaret at Chalmers University of Technology in Gothenburg, Sweden. It's goal is to develop the awesome

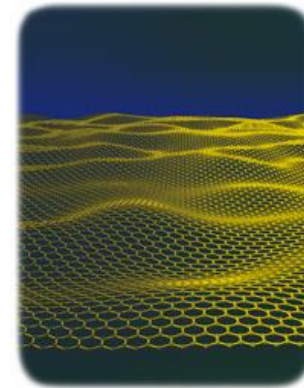
Graphene FET Flagship

Graphene, is a 2D material , a single layer of carbon atoms, stronger than diamond, yet lightweight and flexible and an exceptional electricity conductor.

The Graphene Flagship will bring graphene, and related 2D materials, **from academic labs to industry, manufacturing and society.**

Examples Applications:

- ✓ electronic paper; bendable smartphones; enhanced solar cells and batteries; lighter and more energy efficient airplanes ...
- ✓ On the longer term, graphene is expected to give rise to new computers and revolutionary medical applications such as artificial retinas.



*Artistic impression of a corrugated graphene sheet
Credit: Jannik Meyer*





The GRAPHENE Consortium

It consists of 75 Partners. Leading institutions include:

CHALMERS TEKNISKA HOEGSKOLA AB *[COORDINATOR]*

CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE

THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE

THE UNIVERSITY OF MANCHESTER

CONSIGLIO NAZIONALE DELLE RICERCHE

AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS

COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES

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GRAPHENE

Connections to other parts of H2020

- LEIT: ICT, nanotechnologies;
advanced materials;
advanced manufacturing
and processing
- Societal Challenges: Energy; Transport;
- Excellent Science: ERC, MSC



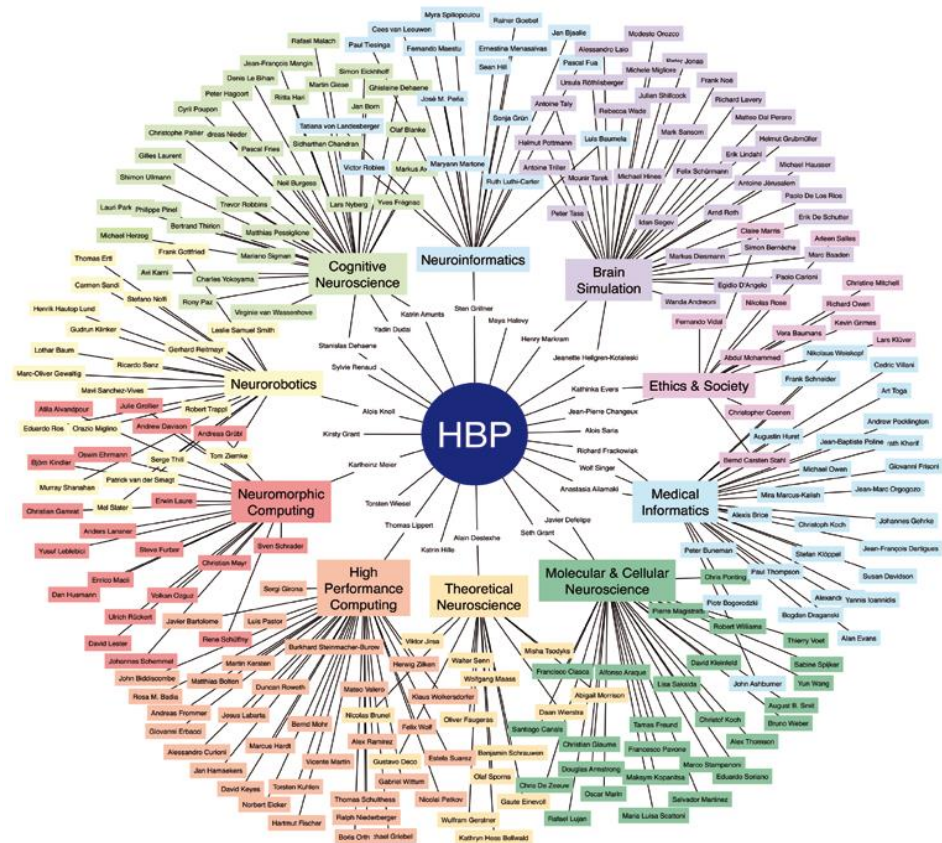
The Human Brain Project (HBP)



HBP will create the world's largest **experimental facility for developing the most detailed models of the brain** (from genes to mind), for studying how the human brain works and ultimately for simulating and developing personalised treatment of brain diseases.

This research lays the scientific and **technical foundation for medical progress**: identifying new drug targets and treatment, in response to the urgent need to combat brain diseases and their associated costs to society.

HBP will also produce brain-inspired **'neuromorphic' computing** systems that could drastically reduce power-consumption for super-computers and enhance robots.





The HBP Consortium

It consists of 85 Partners. Leading institutions include:

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE



CH

RUPRECHT-KARLS-UNIVERSITÄT HEIDELBERG

DE

FORSCHUNGSZENTRUM JÜLICH GMBH

DE

CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE

FR

KAROLINSKA INSTITUTET

SE

UNIVERSIDAD POLITECNICA DE MADRID

ES

TECHNISCHE UNIVERSITÄT MÜNCHEN

DE

THE UNIVERSITY OF EDINBURGH

UK

HOSPICES CANTONAUX CHUV

CH

BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION

ES

COMMISSARIAT A L'ÉNERGIE ATOMIQUE ET AUX ÉNERGIES ALTERNATIVES

FR



HBP

Connections to other parts of H2020

- Societal Challenges: Health
- Excellent Science: ERC, MSC, Research Infrastructures, FET (HPC)

FET Flagships Implementation (1)

initiated in FP7

- **Ramp-up phase (FP7) started 1 Oct. 2013 for 30 months (54M€ funding for each Flagship)**
- **Ensuring openness and allowing others to take co-ownership**
 - call for new partners organised by Flagships during ramp-up phase (autumn 2013; 8-9M€ per flagship)^(*)
 - Graphene, <http://www.graphenecall.esf.org/>, Feb 5, 2014
 - Human Brains Project, <https://www.humanbrainproject.eu/participate/competitive-calls-programme>, closed
 - association of other projects/initiatives (funded at EU/national/transnational level)

* Only for new beneficiaries, i.e. organisations which are not part of the existing consortium

FET Flagships Implementation (2)

initiated in FP7

On-going ERA-NET - Coordination of MS support to the Flagships

- FLAG-ERA (FP7): 22 National and regional funding organisations and ministries from 17 countries. Starting in synchrony with the 2 core projects for 36 months.
Expected outcome
 - (a) Enhanced complementarities and synergies of regional, national, European and international research programmes and initiatives;
 - (b) Networking between national funding agencies and creation of a discussion forum for matters of interest related to the two FET Flagships;
 - (c) Identification of areas that could complement the core projects and that may be subject of future joint calls;
 - (d) Reduction the fragmentation of the European Research Area (ERA)
- A follow-up ERA-NET is foreseen in WP16

FET Flagships in FET WP14-15 (1)

Framework Partnership Agreement (FPA) - 2014

- Two Framework Partnership Agreements between the EC and the Flagship partners will be established through a call in 2014 in order to formalise in particular:
 - the EC long-term commitment to support the Flagships, and
 - the partners' commitment to establish, maintain and implement the strategic research agenda of each of the Flagships
- At later stages, specific grant agreements will be signed, using the modalities set out in the FPA. Initially this will be the follow-up core projects called for in 2015.

FET Flagships in FET WP14-15 (2)

Core projects - 2015

The core project should progress FET Flagship research tasks in accordance with the defined roadmap, and also (amongst others)

- ensuring the overall continuity and coherence
- governance of the initiative
- collaboration with other initiatives or programmes at regional, national, transnational or global level (e.g. related ERANET projects)

Complementary projects are foreseen in future WPs.

Coordination and support actions

- Impact analysis
- Policy support

Digital Science and Open Access

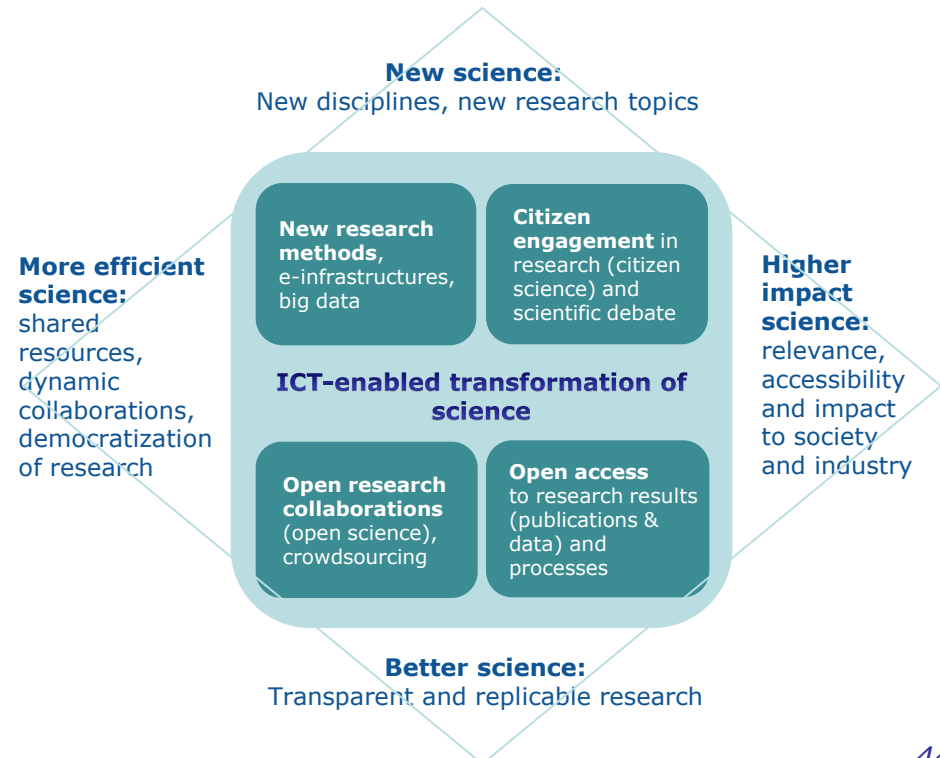
Digital science is about making science and research more efficient, transparent, better valued and with higher impact through the tools, collaboration models and openness (**Open access = free online access**) made possible by ICT.

Digital Science in H2020:

- Content: Contribute to developing discipline-specific or generic scientific tools and processes
- Process: Apply modern scientific tools and processes in different topic areas

Open Access in H2020:

- Mandatory for all publications resulting from H2020 projects
- Open data pilot for specific areas
- E-infrastructure support for OA publications and research data management & sharing



FET Advisory Group (FETAG)

- Provided for in the legislative text to **give consistent and consolidated advice on relevant objectives and S&T&I priorities** during the WP preparations
- Selected 26 members, who responded to the EC call for candidates for H2020 Advisory Groups. Balanced composition in terms of countries, gender, stakeholders, disciplines, age.

FET WP2014-15 Structure

Call FET-Open - fostering novel ideas

- Topic 1: FET-Open research projects
- Topic 2: Coordination and Support Activities

Call FET-Proactive - nurturing emerging themes and communities

- Topic 1: Global Systems Science (GSS)
- Topic 2: Knowing, doing and being; cognition beyond problem solving
- Topic 3: Quantum simulation

Call FET Proactive - towards exascale High Performance Computing

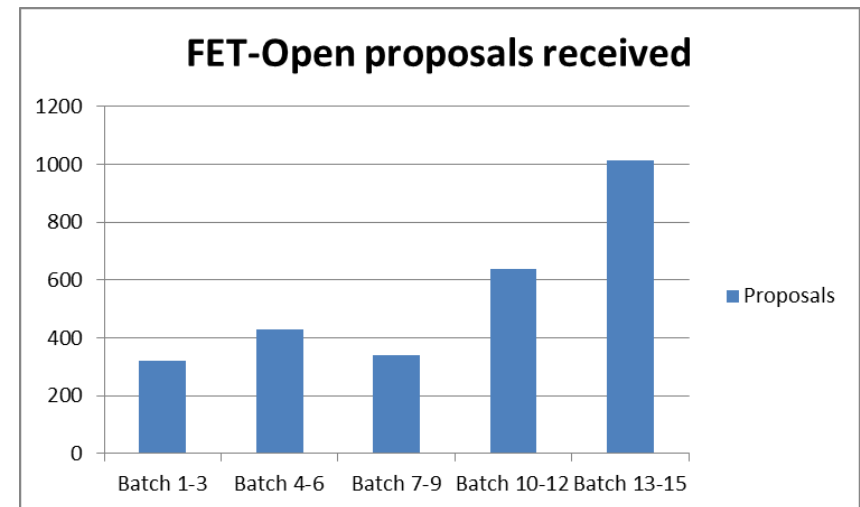
- Topic 1: HPC Core Technologies, Programming Environments and Algorithms for Extreme Parallelism and Extreme Data Applications
- Topic 2: HPC Ecosystem Development

Call FET-Flagships - tackling grand interdisciplinary science and technology challenges

- Topic 1: Framework Partnership Agreement
- Topic 2: Graphene FET Flagship Core Project
- Topic 3: Human Brain Project FET Flagship Core Project
- Topic 4: Policy environment for FET Flagships

Agile, light and fast scheme

- High quality peer review
 - Peer review evaluation
 - Large pool of scientific experts: typically some 200 to 300 experts per FET-Open call
 - Sourced from EU and the global scientific arena (e.g. US, Japan, China)
 - Representing all relevant topics and scientific disciplines
Engineering, physics, mathematics, life sciences, SSH...
 - Expert intensive: 4 experts per proposal
- Deadline free (FET-Open)
 - Open 24/7
 - Two cut-off dates per year (March / Sept.)
- Light overhead for scientists
 - 15 page proposals
 - 'Short' grant based on proposal
 - Reporting based on yearly 'Periodic Report'
 - Scientific monitoring based on peer review
- Fast
 - Time to contract of max. 8 months





One step submission

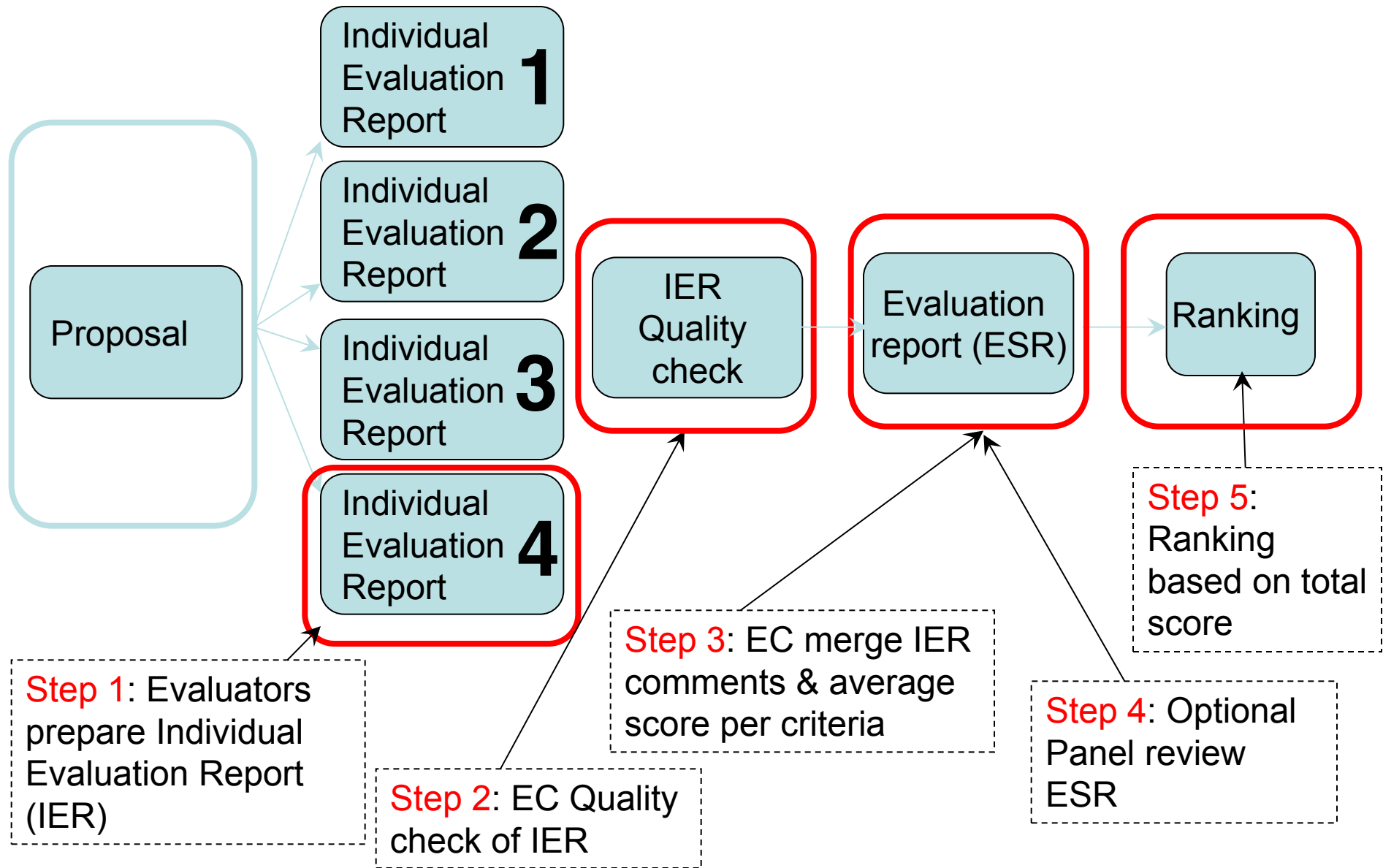
- Part A: Administrative part of the proposal
- Part B : Scientific part of the proposal
 - **15 pages** (excluding cover page and ethics section)
 - Cover page
 - Section 1: S&T Excellence
 - Section 2: Impact
 - Section 3: Implementation



Eligibility

- Standard eligibility criteria
- + FET specific criteria
 - **15 page core proposal !**

One stage evaluation





FET Evaluation criteria (R&I proposals)

- ***S/T quality*** weight 60%, threshold 4/5
 - Clarity of targeted breakthrough and its specific science and technology contributions towards a long-term vision.
 - Novelty, level of ambition and foundational character.
 - Added value from interdisciplinarity.
 - Appropriateness of the research methods.
- ***Impact*** weight 20%, threshold 3,5/5
 - Importance of the new technological outcome with regards to its transformational impact on technology and/or society.
 - Plans towards getting a transformational impact on technology and/or society.
 - Impact from empowerment of new and high potential actors towards future technological leadership.
- ***Implementation*** weight 20%, threshold 3/5
 - Quality of the workplan and clarity of intermediate targets.
 - Relevant expertise in the consortium.
 - Appropriate allocation and justification of resources (person-months, equipment, budget)..

National Contact Points

- Support to transnational networks, via the work programme
- Training for National Coordinators and Legal/Financial NCPs 15-16 October by DG RTD (to be webcast and recorded)
- Training for ICT and FET NCPs: 23-24 October
- NCP highly involved in ICT 2013 Conference in Vilnius on 6-8 November (main launch event for ICT)
- National Information Days organised by NCP